0001

January 22, 2003

Johnny Pappas, Senior Environmental Engineer
Plateau Mining Corp.
P.O. Box 30
Helper, Utah 84526-0030

Re: Conditional Approval of Water Monitoring Change, Plateau Mining Corporation, Willow Creek Mine, C/007/038 AM02A, Outgoing File

Dear Mr. Pappas:

The above-referenced amendment is conditionally approved upon receipt of five clean copies prepared for incorporation. Please submit these copies by February 5, 2003. Once we receive these copies, final approval will be granted, at which time you may proceed with your plans.

A stamped incorporated copy of the approved plans will also be returned to you at that time, for insertion into your copy of the Mining and Reclamation Plan. A copy of our Technical Analysis is enclosed.

If you have any questions, please call me at (801) 538-5325 or Mike Suflita at (801) 538-5259.

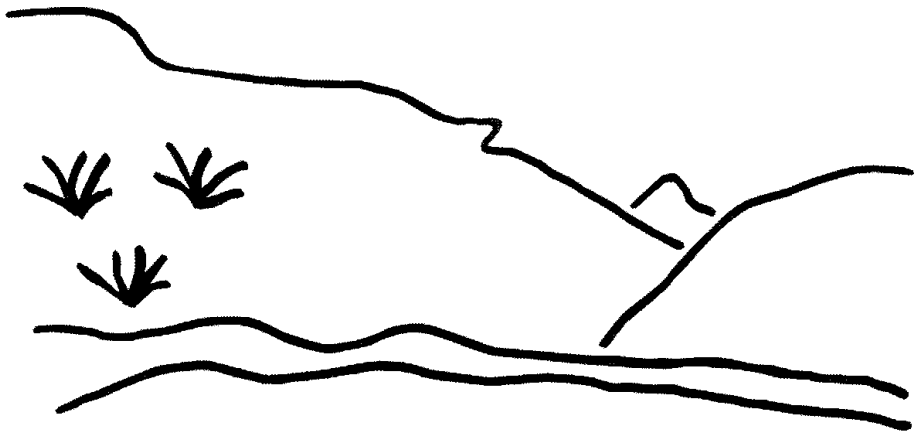
Sincerely,

/S/

Daron Haddock
Permit Supervisor

an
Enclosure
cc: Price Field Office
O:\007038.WIL\FINAL\COND_APP02A.DOC

State of Utah



Utah Oil Gas and Mining

Coal Regulatory Program

Willow Creek Mine
Water Monitoring Change
C/007/038-AM02A
Technical Analysis
January 22, 2003

TECHNICAL ANALYSIS

The Division ensures compliance with the Surface Mining Control and Reclamation Act of 1977 (SMCRA). When mines submit a Permit Application Package or an amendment to their Mining and Reclamation Plan, the Division reviews the proposal for conformance to the R645-Coal Mining Rules. This Technical Analysis is such a review. Regardless of these analyses, the permittee must comply with the minimum regulatory requirements as established by SMCRA.

Readers of this document must be aware that the regulatory requirements are included by reference. A complete and current copy of these regulations and a copy of the Technical Analysis and Findings Review Guide can be found at http://ogm.utah.gov/coal

This Technical Analysis (TA) is written as part of the permit review process. It documents the Findings that the Division has made to date regarding the application for a permit and is the basis for permitting decisions with regard to the application. The TA is broken down into logical section headings which comprise the necessary components of an application. Each section is analyzed and specific findings are then provided which indicate whether or not the application is in compliance with the requirements.

Often the first technical review of an application finds that the application contains some deficiencies. The deficiencies are discussed in the body of the TA and are identified by a regulatory reference which describes the minimum requirements. In this Technical Analysis we have summarized the deficiencies at the beginning of the document to aid in responding to them. Once all of the deficiencies have been adequately addressed, the TA will be considered final for the permitting action.

It may be that not every topic or regulatory requirement is discussed in this version of the TA. Generally only those sections are analyzed that pertain to a particular permitting action. TA's may have been completed previously and the revised information has not altered the original findings. Those sections that are not discussed in this document are generally considered to be in compliance.

INTRODUCTION

On December 10, 2002 the Division received an amendment to revise the water-monitoring plan at Willow Creek Mine since the mine has been closed and is being reclaimed. This Technical Analysis is a review of that proposed amendment. There are no deficiencies.

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

General

The submittal consists of:

- Replacing pages 4.7-15 and 4.7-22 of text,
- Revision to Table 4.7-1, Willow Creek Mine- Hydrologic Monitoring Stations,
- Revision to Table 4.7-3 (Continued) Willow Creek Postmining Water Sampling Schedule,
- Revision to Map 15, Willow Creek Mine Regional Hydrology and Monitoring Station Locations, and
- Addition of Exhibit 10, Hydrologic Conditions at the Willow Creek Mine at Mine Closure, Including Projections of Future Potentiometric Levels and Recommended Monitoring Plans.

Exhibit 10 provides a lengthy and detailed description of Hydrologic conditions of the mine from gathering of baseline data up to the present time. Included are sections detailing:

- Methods of Study
- History of Mining Operations
- Physiographic, Climatic, and Geologic Setting
- Current Hydrologic Conditions
- Projection of Likely Future Potentiometric Levels in the Willow Creek Mine
- Recommended Hydrologic Monitoring Plan
- Conclusions

According to Exhibit 10, "Over the past 100 years, 50 major coal mines have operated in the vicinity of the Willow Creek Mine. Of these, at least 14 are located on or immediately adjacent to the Willow Creek Mine permit area." Further, "Mining operations at the Willow Creek Mine began in 1996 and continued through July 2000, when mining operations permanently ceased. Currently, the mine us undergoing reclamation-related activities." In addition, it notes that, "In November 1998, … a mine fire occurred in the gob area behind the longwall shields… Mining resumed in December 1999."

The report provides graphs of monitoring data for all the past and current monitoring stations. Included are 14 springs, 10 stream points, and 8 wells. Of particular interest is the comparison of the flow, or well water surface elevation, to the Palmer Hydrologic Index (PHDI), and Total Dissolved Solids (TDS). The Division reviewed all the presented data and compared that to the interpretation given in the text of the report. They were found to be consistent. While this

Technical Analysis could contain a detailed analysis of the presentations in Exhibit 10, that would basically be a lengthy recapitulation of the detailed data and interpretations in the report. Since the Division has reviewed the material and found it to be consistent, only the conclusions and impact of those conclusions will be discussed.

Groundwater Monitoring

The mine was operational for only 4 years. Numerous problems, including a mine fire that closed operations for over a year, occurred during that time and greatly limited the extent of mining. Three longwall setups were accomplished during that time. Finally, an explosion and mine fire permanently closed the mine. The result was a limited extent of mining. Importantly, "There has been no measurable subsidence at any location in the permit area. (Subsidence data are included to support this.) There are no springs or perennial streams that flow above or within the angle-of-draw of the existing mine workings." As a result, "No detrimental impacts to the Hydrologic balance have occurred as a result of previous mining-related activities." The detailed analysis discussed above supports these conclusions. Given these conditions, the Division concurs with the elimination of the 14 spring and 8 well monitoring points that were contained in the Mining and Reclamation Plan (MRP).

Surface Water Monitoring

Since mining has ceased, the surface water-monitoring plan is being revised. According to Exhibit 10, "This plan is designed to 1) monitor for any potential impacts to the Hydrologic balance in the Willow Creek Mine permit and adjacent areas resulting from reclamation activities, and 2) document and verify that the overall hydrologic balance, including water quality and water quantity in both the Willow Creek and Price River drainages above and below the mine permit area is not impacted." Table 8, Recommended Monitoring Plan, Table 9, Field and Laboratory Measurement Protocol, and Table 10, Recommended Quarterly Surface Water Post-mining Water Quality Monitoring provide details of the revised monitoring. All of the retained streams monitoring points have been monitored in the past. They all retain the same type and frequency of monitoring as in the past. They are located upstream and downstream of areas of potential impact due to mining and due to reclamation activities. Stream monitoring points include:

- B5 Price River below permit area
- B6 Price River above mine disturbed area
- B25 Upper Crandall Canyon Creek
- B26 Lower Crandall Canyon Creek

- B151 Willow Creek above permit area
- B3N Willow Creek below permit area

The B3N monitoring point on Willow Creek below the permit area "also facilitates assessment of impacts to water quality resulting from any potential discharge of mine water into the creek." This would be in the event that the Willow Creek Mine might eventually fill up with water and possibly discharge out the portals. This is discussed later in this Technical Analysis. Four stream-monitoring points are proposed to be removed from the MRP. They are all well outside the limited area of mining. Given these conditions, the Division concurs with the proposed elimination of stream-monitoring points, except those listed above, which were contained in the Mining and Reclamation Plan (MRP).

Gravity Discharges From Underground Mines

Exhibit 10 discusses at length the projection of likely future potentiometric levels in the Willow Creek Mine. The report discusses the potential sources of water flowing into the mine. These include groundwater entering the mine from the alluvium of Willow Creek, cracked longwall gob inflows, and water from the abandoned K-seam located below the recently mined D seam. Water level changes over a 6-year period were tracked in monitoring wells B-11, B-12, the portal injection well, and the monitoring well at crosscut 27. After determining the mine volume filled in both the K and D seams, the current water inflow to Willow Creek Mine was determined to be about 100 gallons per minute (gpm). This is expected to decline to about 20-25 gpm after the mine fills. This is consistent with experiences during mining, which basically show Willow Creek Mine to be very dry. Watering is necessary to keep down the dust disturbed by vehicle traffic and other mining activities. Four scenarios for the mine filling are presented, along with the assumptions upon which they are based. These are summarized in the following table taken from Exhibit 10, with parenthesis added.

The sources of mine inflow waters for each of the four scenarios were estimated and the chemical composition was taken from previous monitoring data. The resulting possible mine discharge quality was derived and is also indicated in the following table.

Assumptions	Projected Potentiometric Level	Potential Discharge Rate	Projected Quality of Water Potentially Discharged	Projected Time Until Mine Workings Fill	Likelihood of Occurrence
Current mine inflows will occur in the future, no hydraulic connection with the K-seam workings, Willow Creek alluvial groundwater system completely saturated below creek.	Approximately 6285 ft. (5 ft. above portals)	Approximately 20-25 gpm.	Approximately 850 to 1,000 mg/l, no dominant ion type.	Approximately 52 years if the Willow Creek alluvium is completely saturated. Will not fill if water table in alluvium is lower than 6280 ft. (portals 6280 ft.)	Possible
Current mine inflows will occur in the future, no hydraulic connection with the K-seam workings, Willow Creek alluvial groundwater system **not** completely saturated below the creek.	Approximately 6265 ft. (15 ft below portals)	No Discharge	No Discharge	Mine workings likely will not fill.	**Most Likely** **It is our professional opinion that this is the most likely scenario.**
Hydraulic connection with the K-seam workings, K-seam water derived from Willow Creek leakage near K-seam burn area, current mine inflows will occur in the future.	Approximately 6265-6275 ft. if Willow Creek alluvium is completely saturated, lower if alluvium is not completely saturated. (5-15 ft. below portals)	Variable, depending on the degree of communication with the K-seam workings.	Approximately 1,000 mg/l, sodium bicarbonate type.	Will likely not fill if the hydraulic head in the Willow Creek alluvium in the vicinity of the K-seam coal burn is lower than 6280 ft. If the hydraulic head is greater than 6280 ft., the time to mine filling will be variable, depending on the degree of communication with the K-seam workings.	Unlikely
Hydraulic connection with the K-seam workings, K-seam water derived from leakage from 2nd mined areas or from leakage from old boreholes.	Approximately 6265 –6575 feet if Willow Creek alluvium is completely saturated, lower if alluvium is not completely saturated. (5 to 15 ft. below portals)	Variable, depending on the degree of communication with the K-seam workings.	Approximately 1,000 mg/l, sodium bicarbonate type	Will likely not fill if the hydraulic head in the Willow Creek alluvium in the vicinity of the K-seam coal burn is lower than 6280 ft. If the hydraulic head is greater than 6280 ft., the time to mine filling will be variable, depending on the degree of communication with the K-seam workings.	Unlikely

The most likely mine-filling scenario results in no mine discharge water. The Division agrees that the assumptions for the most likely scenario are those to be expected. This is based on the data presented in Exhibit 10. Two scenarios are considered unlikely, although they might have variable discharges. Given the projected water levels of these scenarios being 5 to 15 feet below the portal, the discharge would be little to none. One possible scenario results in mine water discharge of about 20 to 25 gpm. If mine discharges do occur, they are estimated to contain about 1,000 mg/l, which would discharge into Willow Creek. This would be similar to monitoring points B3321, Sulfur Spring in Willow Creek Canyon, which averages 1,200 mg/l and B22-1, Spring in Crandall Canyon, which averages about 1,000 mg/l. Willow Creek above and below the mine portals averages about 400 to 600 mg/l naturally. All of these scenarios are difficult to estimate and quantify. Still, the analysis presented appears to have included all of the known considerations. Given that the mine has been sealed for safety reasons, nothing can be done to influence the final water levels in the mine. Only time will show the accuracy of these estimates.

Findings:

The proposed amendment meets minimum regulatory requirements.

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation Plan

As described in the Operation Plan section of this Technical Analysis, the water-monitoring plan has been modified. The modifications resulted in the Division approving a reduction of the monitoring required during the Reclamation phase of the mine.

Findings:

The proposed amendment meets minimum regulatory requirements.